CRADA facts

DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY

FILTRATION
PROJECT

HIGH-TEMPERATURE GAS-STREAM CLEANUP TEST FACILITY

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Capabilities

In support of FETC's hot-gas filter development program, the high-temperature, gas-stream cleanup test facility was designed to:

- Investigate conventional and novel approaches to high- temperature filtration,
- Conduct detailed parametric studies that characterize particulate control devices under well-controlled oxidizing conditions, and
- Screen new materials for other high-temperature applications, such as heat exchanger tubes.

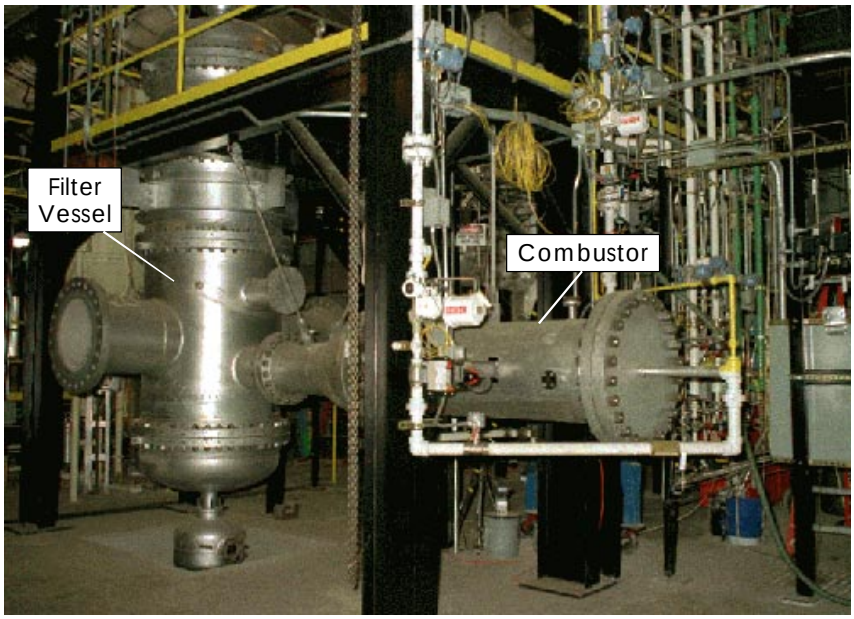
This test facility utilizes a natural gas-fueled combustor to produce high-temperature process gas, and a screw feeder to inject ash, or other fine media, into the gas stream. Two pressure vessels that house the particulate control devices have an inside diameter of approximately 0.20 meters (8 inches) and 0.90 meters (34 inches) respectively. Three commercial-size filter elements can be tested simultaneously in the small pressure vessel. Unconventional filter configurations or as many as 28 commercial-size filter elements can be tested in the large pressure vessel. The facility is capable of operating over a wide range of conditions. Operating temperatures can vary from 540 to 870 °C (1,000 to 1,600 °F), and the operating pressure can vary from 0 to 580 kPa (0 to 70 psig).

Opportunities

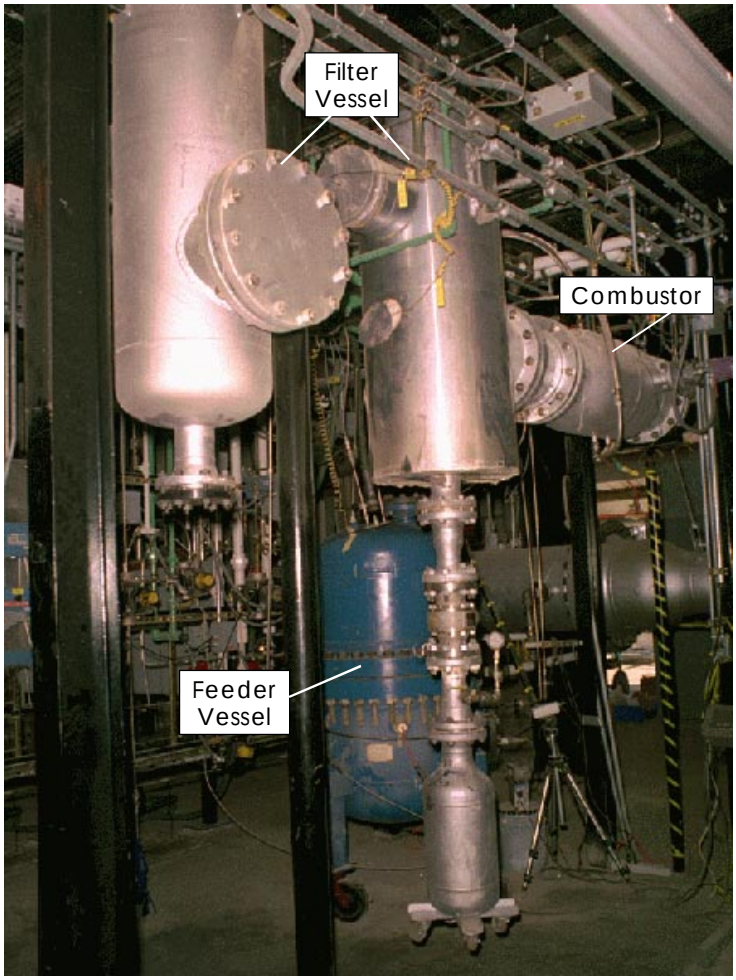
- Testing and analyses of conventional high-temperature filtration devices.
- Testing and analyses of novel high-temperature particulate control devices.
- Conducting detailed parametric studies that characterize particulate control devices under well-controlled conditions.
- Screening materials for other high-temperature applications.

HIGH-TEMPERATURE GAS-STREAM CLEANUP TEST FACILITY

0.90 m Pressure Vessel showing filter vessel and combustor (feeder vessel not shown)



0.20 m Pressure Vessel showing lower section of filter vessel, combustor, and feeder vessel



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